

London Borough of Hammersmith and Fulham

Air Quality Annual Status Report for 2015

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This report provides a detailed overview of air quality in the London Borough of Hammersmith and Fulham during 2015. It has been produced to meet the requirements of the London Local Air Quality Management statutory process¹.

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¹ LLAQM Policy and Technical Guidance 2016 (LLAQM.TG(16)). <https://www.london.gov.uk/what-we-do/environment/pollution-and-air-quality/working-boroughs>

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Abbreviations

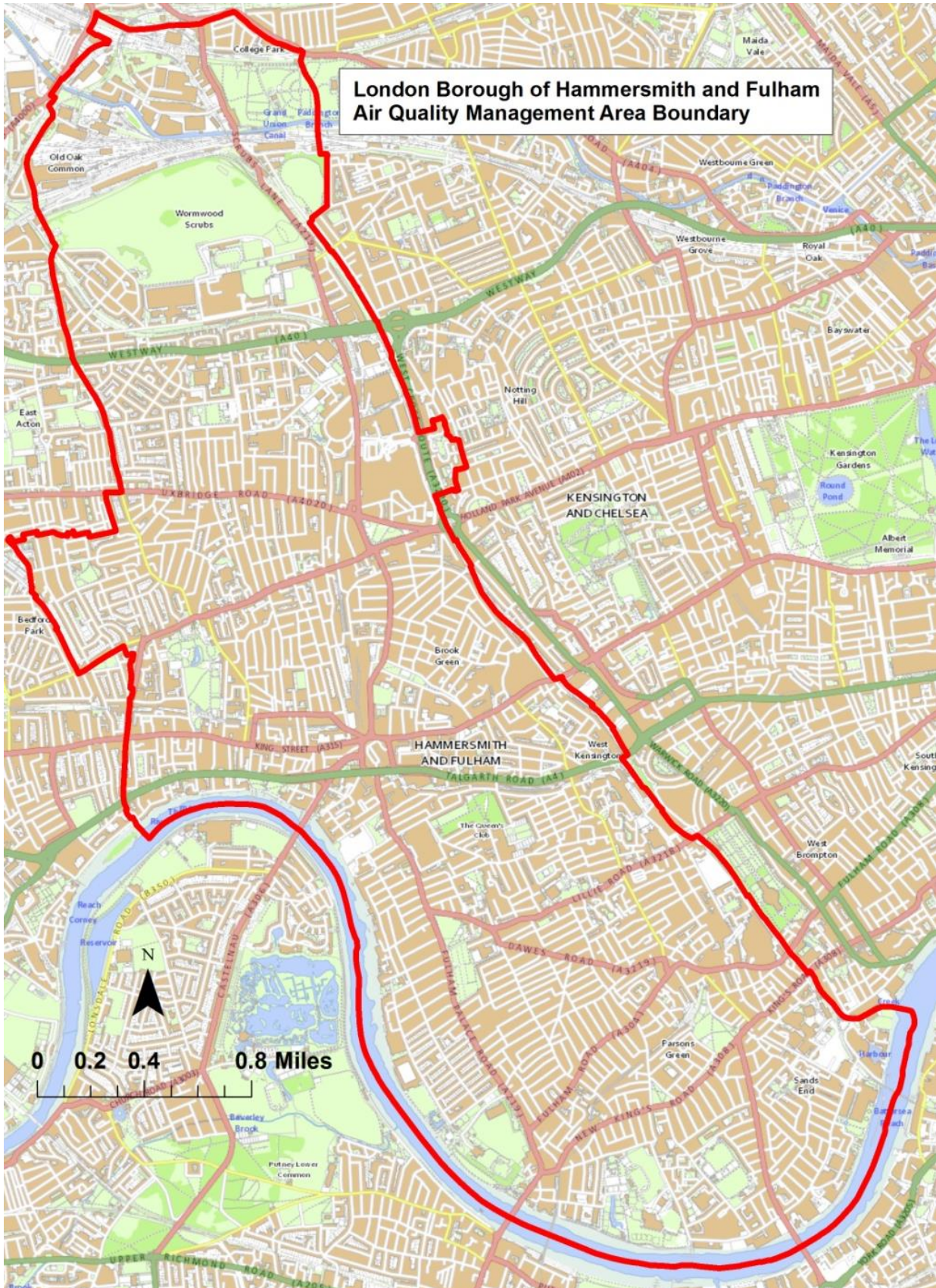
AQAP	Air Quality Action Plan
AQMA	Air Quality Management Area
AQO	Air Quality Objective
BEB	Buildings Emission Benchmark
CAB	Cleaner Air Borough
CAZ	Central Activity Zone
EV	Electric Vehicle
GLA	Greater London Authority
LAEI	London Atmospheric Emissions Inventory
LAQM	Local Air Quality Management
LLAQM	London Local Air Quality Management
NRMM	Non-Road Mobile Machinery
PM ₁₀	Particulate matter less than 10 micron in diameter
PM _{2.5}	Particulate matter less than 2.5 micron in diameter
TEB	Transport Emissions Benchmark
TfL	Transport for London

Table A. Summary of National Air Quality Standards and Objectives

Pollutant	Objective (UK)	Averaging Period	Date¹
Nitrogen dioxide - NO ₂	200 µg m ⁻³ not to be exceeded more than 18 times a year	1-hour mean	31 Dec 2005
	40 µg m ⁻³	Annual mean	31 Dec 2005
Particles - PM ₁₀	50 µg m ⁻³ not to be exceeded more than 35 times a year	24-hour mean	31 Dec 2004
	40 µg m ⁻³	Annual mean	31 Dec 2004
Particles - PM _{2.5}	25 µg m ⁻³	Annual mean	2020
	Target of 15% reduction in concentration at urban background locations	3 year mean	Between 2010 and 2020
Sulphur Dioxide (SO ₂)	266 µg m ⁻³ not to be exceeded more than 35 times a year	15 minute mean	31 Dec 2005
	350 µg m ⁻³ not to be exceeded more than 24 times a year	1 hour mean	31 Dec 2004
	125 µg m ⁻³ not to be exceeded more than 3 times a year	24 hour mean	31 Dec 2004

Note: ¹by which to be achieved by and maintained thereafter

Figure 1 - Map of AQMA Boundary (whole borough)



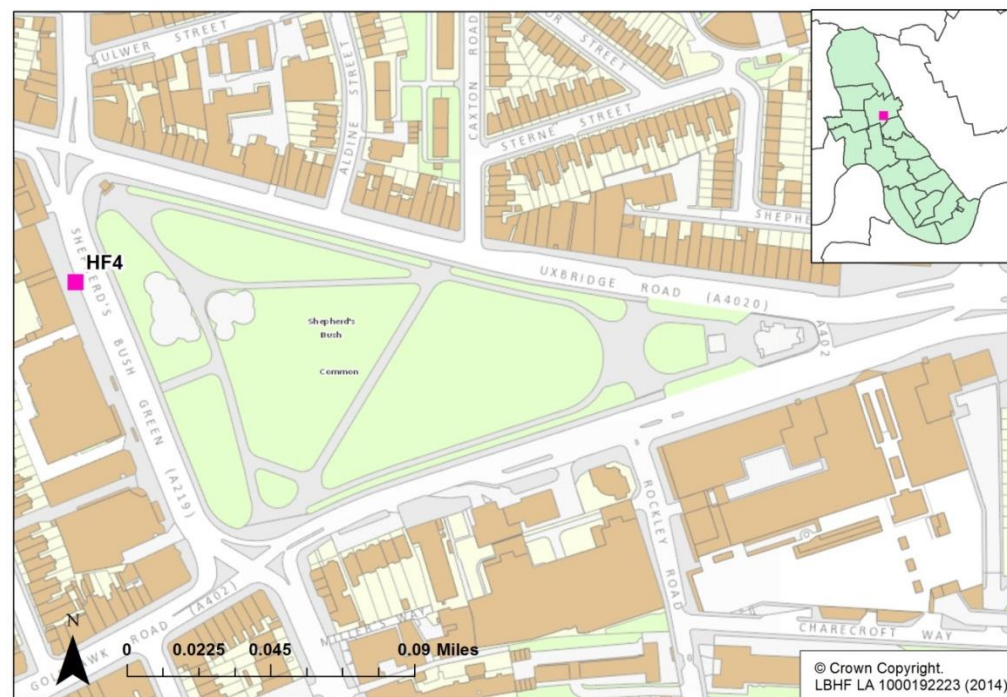
1. Air Quality Monitoring

1.1 Locations

Table B. Details of Automatic Monitoring Sites for 2015

Site ID	Site Name	X (m)	Y (m)	Site Type	In AQMA?	Distance from monitoring site to relevant exposure (m)	Distance to kerb of nearest road (N/A if not applicable) (m)	Inlet height (m)	Pollutants monitored	Monitoring technique
HF4	Shepherd's Bush	523313	179900	Urban Roadside	Y	1	2.0	2.0	NO ₂ , PM ₁₀	TEOM / Chemiluminescent;

Figure 2 - Map of Automatic Monitoring Site



Non-Automatic Monitoring Sites

During 2015, 15 diffusion tubes were used to monitor NO₂ levels at 8 roadside sites and 7 background sites, as shown in the map and table below.

Figure 3 - Map of Non-Automatic Monitoring Sites

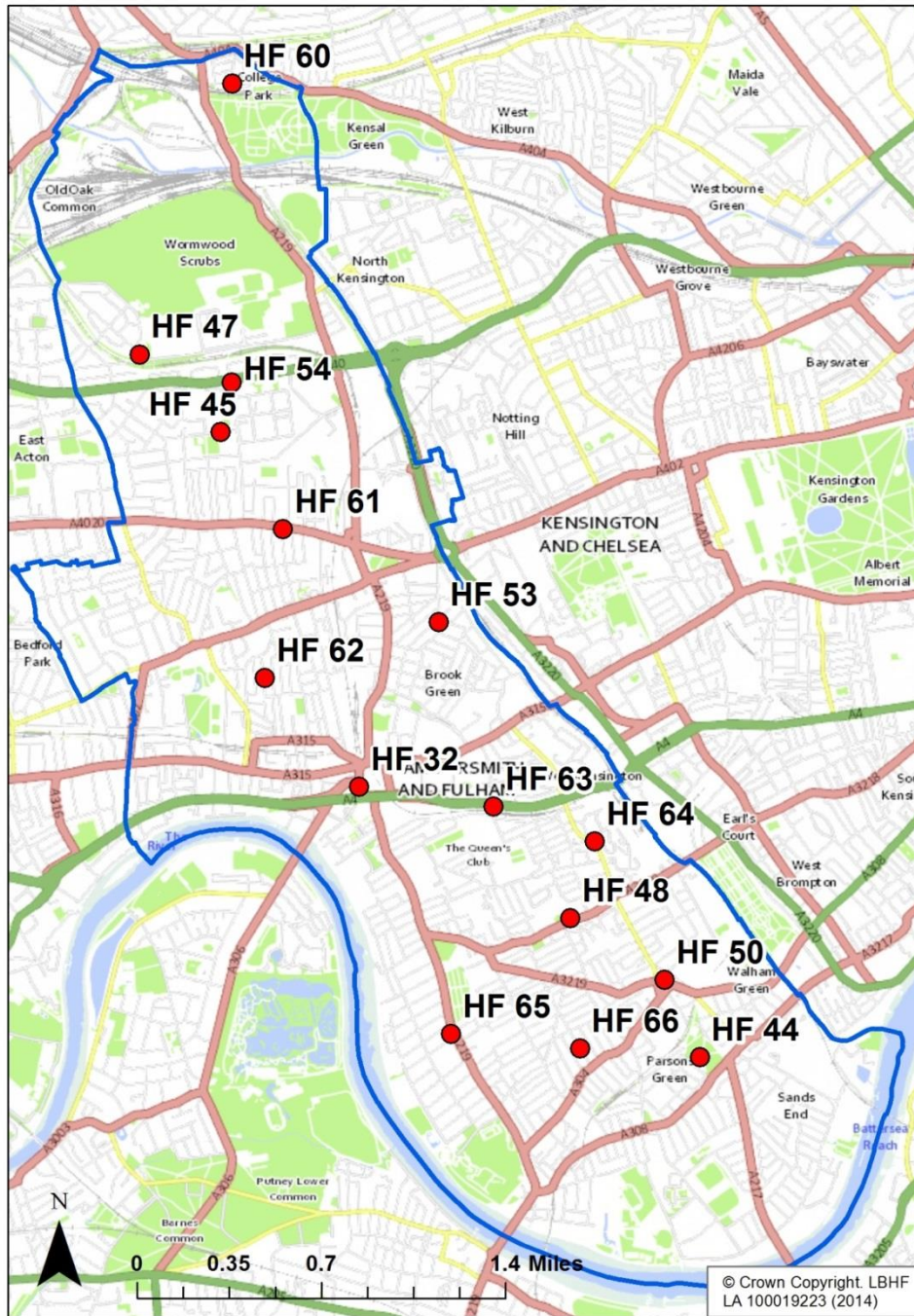


Table C. Details of Non-Automatic Monitoring Sites for 2015

Site ID	Site Name	X (m)	Y (m)	Site Type	In AQMA?	Distance from monitoring site to relevant exposure (m)	Distance to kerb of nearest road (N/A if not applicable) (m)	Inlet height (m)	Pollutants monitored	Tube co-located with an automatic monitor? (Y/N)
HF32	Hammersmith Broadway	523327	178484	Urban Roadside	Y	1	4	3.0	NO ₂	N
HF44	Eel Brook Common	525413	176828	Urban Background	Y	1	50	3.0	NO ₂	N
HF45	Bryony Road	522479	180656	Urban Background	Y	6	1	3.0	NO ₂	N
HF47	Wulfstan Street	521984	181132	Urban Background	Y	13	1	3.0	NO ₂	N
HF50	Fulham Broadway	525197	177302	Urban Roadside	Y	15	2	3.0	NO ₂	N
HF53	Addison Gardens	523813	179491	Urban Background	Y	5	1	3.0	NO ₂	N
HF54	Westway A40	522548	180960	Urban Roadside	Y	20	3	3.0	NO ₂	N
HF61	Uxbridge Road	522861	180061	Urban Roadside	Y	3	1	3.0	NO ₂	N
HF63	Talgarth Road	524150	178363	Urban Roadside	Y	14	1	3.0	NO ₂	N
HF66	Radipole Road	524680	176880	Urban Background	Y	4	1	3.0	NO ₂	N
HF62	Cardross street	522750	179150	Urban Background	Y	3	1	2.47	NO ₂	N
HF65	Fulham Palace Road	523890	176970	Urban Roadside	Y	6	1	2.58	NO ₂	N
HF48	Lillie Road	524620	177680	Urban Roadside	Y	4	1	2.55	NO ₂	N
HF64	North End Road	524770	178150	Urban Roadside	Y	13	1	2.67	NO ₂	N
HF60	Waldo Road	522550	182790	Urban Background	Y	4	1	2.46	NO ₂	N

1.2 Comparison of Monitoring Results with AQOs

The results presented are after adjustments for “annualisation” and for distance to a location of relevant public exposure, the details of which are described in Appendix A.

Table D. Annual Mean NO₂ Ratified and Bias-adjusted Monitoring Results ($\mu\text{g m}^{-3}$)

Site ID	Site type	Valid data capture for monitoring period % ^a	Valid data capture 2015 % ^b	Annual Mean Concentration ($\mu\text{g m}^{-3}$)						
				2009 (DT BAF = .92)	2010 (DT BAF =.93)	2011 (DT BAF =.94)	2012 (DT BAF =1.01)	2013 (DT BAF =1.14)	2014 (DT BAF =1.03)	2015 (DT BAF =1.07)
HF4	Automatic Roadside	95	95	No data	No data	No data	<u>92</u>	<u>76.2</u>	<u>80.3</u>	<u>76</u>
HF32	DT - Urban Roadside	100	100	<u>72</u>	<u>72</u>	<u>64</u>	<u>77</u>	<u>89.55</u>	<u>78.83</u>	<u>77.51</u>
HF44	DT - Urban Background	100	100	33	33	26	35	37.89	29.61	28.48
HF45	DT - Urban Background	100	100	35	35	27	36	42.60	35.11	34.05
HF47	DT - Urban Background	100	100	42	38	35	41	49.66	46.01	45.36
HF50	DT - Urban Roadside	100	100	<u>71</u>	<u>64</u>	<u>61</u>	<u>71</u>	<u>75.34</u>	<u>64.97</u>	<u>60.26</u>
HF53	DT - Urban Background	100	100	35	34	27	36	41.61	32.53	32.57
HF54	DT - Urban Roadside	100	100	<u>69</u>	<u>70</u>	54	<u>77</u>	<u>98.42</u>	<u>80.67</u>	<u>76.58</u>
HF61	DT - Urban Roadside	100	100	44	42	35	43	50.10	45.81	45.90
HF63	DT - Urban Roadside	91	91	58	59	48	56	<u>65.16</u>	56.10	<u>49.84</u>
HF66	DT - Urban Background	100	100	34	34	27	33	38.07	33.24	31.51
HF62	DT - Urban Background	100	100	-	-	-	-	34.69 ^c	31.81	30.69
HF65	DT - Urban Roadside	100	100	-	-	-	-	<u>63.60^c</u>	57.69	<u>57.07</u>
HF48	DT - Urban Roadside	100	100	-	-	-	-	50.47^c	49.08	44.47

Site ID	Site type	Valid data capture for monitoring period % ^a	Valid data capture 2015 % ^b	Annual Mean Concentration ($\mu\text{g m}^{-3}$)						
				2009 (DT BAF = .92)	2010 (DT BAF =.93)	2011 (DT BAF =.94)	2012 (DT BAF =1.01)	2013 (DT BAF =1.14)	2014 (DT BAF =1.03)	2015 (DT BAF =1.07)
HF64	DT - Urban Road-side	100	100	-	-	-	-	<u>64.64^c</u>	58.59	54.77
HF60	DT - Urban Back-ground	100	100	-	-	-	-	42.80^c	39.24	37.60

Notes: Exceedance of the NO₂ annual mean AQO of 40 $\mu\text{g m}^{-3}$ are shown in **bold**.

NO₂ annual means in excess of 60 $\mu\text{g m}^{-3}$, indicating a potential exceedance of the NO₂ hourly mean AQS objective are shown in bold and underlined.

^a data capture for the monitoring period, in cases where monitoring was only carried out for part of the year

^b data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%)

^c Means should be “annualised” in accordance with LLAQM Technical Guidance, if valid data capture is less than 75%

DT = Diffusion Tube

BAF = Bias Adjustment Factor

Table E. NO2 Automatic Monitor Results: Comparison with 1-hour Mean Objective

Site ID	Valid data capture for monitoring period % ^a	Valid data capture 2015 % ^b	Number of Hourly Means > 200 µgm ⁻³						
			2009	2010	2011	2012	2013 ^{cd}	2014 ^{cd}	2015
HF4	89	89	No data	No data	No data	74	11(203.1)	0 (179.1)	19

Notes: Exceedance of the NO₂ short term AQO of 200 µgm⁻³ over the permitted 18 days per year are shown in **bold**.

^a data capture for the monitoring period, in cases where monitoring was only carried out for part of the year

^b data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%)

^c Means should be “annualised” in accordance with LLAQM Technical Guidance, if valid data capture is less than 75%

^dMeans the 99.8th percentile of hourly means in brackets as the period of valid data was less than 90%

Table F. Annual Mean PM10 Automatic Monitoring Results (µg m-3)

Site ID	Valid data capture for monitoring period % ^a	Valid data capture 2015 % ^b	Annual Mean Concentration (µgm ⁻³)						
			2009	2010	2011	2012	2013 ^c	2014 ^c	2015
HF4	87	87	No data	No data	No data	38	36.4	26.5	25

Notes: Exceedance of the PM₁₀ annual mean AQO of 40 µgm⁻³ are shown in **bold**.

^a data capture for the monitoring period, in cases where monitoring was only carried out for part of the year

^b data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%)

^c Means should be “annualised” in accordance with LLAQM Technical Guidance, if valid data capture is less than 75%

Table G. PM10 Automatic Monitor Results: Comparison with 24-Hour Mean Objective

Site ID	Valid data capture for monitoring period % ^a	Valid data capture 2015 % ^b	Number of Daily Means > 50 µg m ⁻³						
			2009	2010	2011	2012	2013 ^{cd}	2014 ^{cd}	2015
HF4	87	87	No data	No data	No data	67	33 (59.5)	0 (38.2)	10

Notes: Exceedance of the PM₁₀ short term AQO of 50 µg m⁻³ over the permitted 35 days per year or where the 90.4th percentile exceeds 50 µg m⁻³ are shown in **bold**.

^a data capture for the monitoring period, in cases where monitoring was only carried out for part of the year

^b data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%)

^c Means should be “annualised” in accordance with LLAQM Technical Guidance, if valid data capture is less than 75%

^d 90th percentile of 24-hour means in brackets where data capture is less than 90%

2. Action to Improve Air Quality

Table J. Commitment to Cleaner Air Borough Criteria

Theme	Criteria	Achieved (Y/N)	Evidence	
1. Political leadership	1.a	Pledged to become a Cleaner Air for London Borough (at cabinet level) by taking significant action to improve local air quality and signing up to specific delivery targets.	Y	No evidence required
	1.b	Provided an up-to-date Air Quality Action Plan (AQAP), fully incorporated into LIP funding and core strategies.	Y	The Council's Air Quality Action Plan is available online at https://www.lbhf.gov.uk/sites/default/files/section_attachments/air-action-plan.pdf Incorporated into LIP process/public health via a number of projects including using LIP to match fund MAQF projects including integrating greening measures to improve local air quality and sustainable drainage along a busy road in Hammersmith Town Centre. Regular programme Transport/Highways LIP meetings are held with air quality officers to discuss how air quality may be embedded in other LIP projects.
2. Taking action	2.a	Taken decisive action to address air pollution, especially where human exposure and vulnerability (e.g. schools, older people, hospitals etc.) is highest.	Y	Running a public health project focusing on increasing communication and liaison with front line health caregivers providing advice to vulnerable people in the borough who suffer from heart and lung diseases.
	2.b	Developed plans for business engagement (including optimising deliveries and supply chain), retrofitting public buildings using the RE:FIT framework, integrating no engine idling awareness raising into the work of civil enforcement officers, (etc etc)	Y	Working closely with the Hammersmith Business Improvement District including work on the Hammersmith Town Centre greening project identified in 1.b and the Clean Air Better Business programme
	2.c	Integrated transport and air quality, including by improving traffic flows on borough roads to reduce stop/start conditions	Y	Installation of a 20mph speed limit on roads in the borough has been implemented. The Council have implemented a number of measures to improve traffic flow including countdown at pedestrian crossings.
	2.d	Made additional resources available to improve local air quality, including by pooling its collective resources (s106 funding, LIPs, parking revenue, etc).	Y	LIP match funding on air quality projects including the MAQF dust suppression project at around waste transfer stations and residential roads in the north of the borough

Theme	Criteria	Achieved (Y/N)	Evidence	
3. Leading by example	3.a	Invested sufficient resources to complement and drive action from others	Y	Secured S106 funding for officers to deal with Air Quality planning submissions and monitoring at major sites in the borough including the Earls Court Opportunity Area and Thames Tideway Tunnel sites.
	3.b	Maintained an appropriate monitoring network so that air quality impacts within the borough can be properly understood	Y	All existing AQ monitors maintained
	3.c	Reduced emissions from council operations, including from buildings, vehicles and all activities.	Y	Evidence of any reduction in council emissions if known: Actions 4 and 11 below
	3.d	Adopted a procurement code which reduces emissions from its own and its suppliers activities, including from buildings and vehicles operated by and on their behalf (e.g. rubbish trucks).	Y	All contracted heavy goods refuse vehicles meet Euro V standards and emissions of Nox are predicted to have decreased – see Table K Action 11 below
4. Using the planning system	4.a	Fully implemented the Mayor's policies relating to air quality neutral, combined heat and power and biomass.	Y	All approved planning applications must meet the Mayor's requirements relating to AQ neutral and CHPs
	4.b	Collected s106 from new developments to ensure air quality neutral development, where possible	N	Air quality contributions established in CIL and S106 contributions being pursued.
	4.c	Provided additional enforcement of construction and demolition guidance, with regular checks on medium and high risk building sites.	Y	Major sites are visited during demolition and construction works to ensure policies are being met
5. Integrating air quality into the public health system	5	Included air quality in the borough's Health and Wellbeing Strategy and/or the Joint Strategic Needs Assessment	Y	Air quality is integral in the joint Health and Wellbeing Strategy 2016-2021 currently in consultation: https://lbhf.citizenspace.com/adult-social-care/jhwsconsultation/supporting_documents/DRAFT%20hf%20jhs%20v0.15.pdf
6. Informing the public	6.a	Raised awareness about air quality locally	Y	airTEXT promotion on website and public events (See Table K – Action 28)

2.1 Air Quality Action Plan Progress

Table K provides a brief summary of the London Borough of Hammersmith and Fulham progress against the Air Quality Action Plan, showing progress made this year. New projects which commenced in 2015 are shown at the bottom of the table.

Table K. Delivery of Air Quality Action Plan Measures

Measure	Action	Progress	Further information
Reducing Emissions at its source	1. Encourage improved availability of alternative fuels	<ul style="list-style-type: none"> • Emissions/Concentration data • Benefits • Negative impacts / Complaints <p>a) The council has installed 14 new on street electric charging points in February 2016.</p> <p>b) Development control requires that all new developments providing off street parking provide a minimum of 20% active and 20% passive EV charging points.</p>	There are plans to increase this number over the next year as initial data showed good usage of the first phase of sites.
Reducing Emissions at its source	2. Provide incentives for use of alternative fuels	The council in coordination with resident groups is reviewing the existing parking permit policies. A motion to introduce parking permits based on a sliding scale of emissions has been proposed to members and is currently being reviewed.	
Reducing Emissions at its source	3. Promote travel plans to encourage a switch to low emission vehicles	Workplace and school travel plans continue to be conditioned as part of the planning process.	

Measure	Action	Progress	Further information
Reducing Emissions at its source	4. Reduce emissions from the council fleet	<ul style="list-style-type: none"> • Emissions/Concentration data • Benefits • Negative impacts / Complaints <p>a) The Council is developing a safer Lorries and Vans Strategy for 2016-17, and has been working with Westrans on a Freight Strategy for the Westrans area.</p> <p>b) FORS status is being investigated.. See also Action Point 17.</p> <p>c) Six most recent vehicles leased by H&F use stop/start technology</p> <p>Council offer monthly 'Dr Bike' sessions for staff to encourage cycling. Mayor's cycle hire pool access for council staff also made available.</p>	
Reducing Emissions at its source	5. Seek a reduction in emissions from the bus fleet	<p>In 2015/16, Route 211 running between Hammersmith to Waterloo was added to the list of new Routemasters.</p> <p>The following routes serving LBHF have varying proportions of their fleet offering hybrid buses ;-</p> <p>Route 7,9,10,11,22,27,49,93,94,148,211 and 295</p>	As part of Neighbourhoods of the Future project, the council are investigating electric bus charging for Hammersmith Town Centre.
Reducing Emissions at its source	6. Encourage the use of vehicles with smaller, more efficient engines	Specifically targeting a certain size of combustion engine has been replaced by a push towards alternative energy sources to the combustion engine	See Action 2 regarding parking permit policies.

Measure	Action	Progress	Further information
Reducing Emissions at its source	7. Seek to reduce emissions from larger vehicles (Low Emission Zone)	<ul style="list-style-type: none"> • Emissions/Concentration data • Benefits • Negative impacts / Complaints <p>a) There are ongoing discussions with TfL/GLA about the size and scope of the ULEZ and whether LBHF will be included within the area.</p> <p>b) Westrans are pursuing the establishment of a consolidation centre which will serve LBHF</p>	The council have been having discussions with Westfield Shopping Centre and Olympia as well as working with the Hammersmith BID encouraging and advising how they may consolidate and reduce their freight deliveries
Reducing Emissions at its source	8. Seek to reduce emissions from badly maintained vehicles	No emissions test have been conducted.	
Reducing Emissions at its source	9. Encourage more environmentally friendly driving behaviour	A 20mph trial was undertaken and recommendations made to implement a significant extension of the 20 mph speed limit.	
Reducing Emissions at its source	10. Seek a reduction in emissions of small particles from construction sites	<p>a) Complaints of dust nuisance investigated as and when reported. 80 complaints were received in 2015/2016 about construction / demolition dust. Informal warning/advice is usually effective in securing improvements.</p> <p>b) We continue to require demolition and construction management plans for major development sites, including the submission of a dust risk assessment as well as measures to minimise dust emissions and are required to follow the London Mayor's "The Control of Dust and Emissions During Construction and Demolition SPG, 2014.' This includes the requirements to meet NRMM criteria.</p>	

Measure	Action	Progress	Further information
Reducing Emissions at its source	11. Seek a reduction in emissions from domestic and commercial properties	<ul style="list-style-type: none"> • Emissions/Concentration data • Benefits • Negative impacts / Complaints <p>a) In 2015/16, 33 home composters were ordered and distributed via Straight PLC</p> <p>b) The community composting on Queen Caroline estate is continuing and is now self-sufficiently being managed by the community.</p> <p>c) In 2015/16 the following green waste was sent for composting:</p> <ul style="list-style-type: none"> - 75 tonnes of Christmas trees - 0 tonnes of leaf fall from public highways were composted after the Environment Agency reclassified the materials in 2013. <p>d) The current heavy goods fleet on the Serco contract are London Low Emissions compliant with a minimum of Euro 5 engines and Eminox exhaust systems fitted. 5 new Refuse Collection Vehicles are Euro 6 engines and exceed the emission scheme.</p> <p>e) There are 2 x electric 3.5t cage vehicles which are operated at night and early mornings to help reduce noise pollution.</p> <p>f) The mechanical Scarab sweeping fleet have all been replaced with Euro 6 engines '15 plate vehicles</p> <p>g) 3 x 7.5tonne cage vehicles have been replaced with new Mitsubishi Canter Hybrid vehicles.</p> <p>h) The oldest vehicles remaining on the fleet are the refuse collection '58 plate vehicles which have been undergoing a refurbishment programme over the 18 months to ensure that</p>	

Measure	Action	Progress	Further information
		<ul style="list-style-type: none"> • Emissions/Concentration data • Benefits • Negative impacts / Complaints <p>they are appearing neatly and will last for a further 5 years. As previously stated they are all Euro 5 and Eminox exhaust fitted. This should be completed in April 2017.</p> <p>i) In 2015/2016 there were 76 complaints about smoke from commercial/domestic properties, including from bonfires. No abatement notices were served.</p> <p>j) There has been a steady decline in electricity usage by the Council's building stock and a reduction in overall CO2 emissions as a result of this and the council resourcing energy from more renewable sources. The time period of May 2015 through April 2016 saw CO2 decrease by 16% from electric sources and 9 percent from gas sources compared to the time period between May 2014 and April 2015.</p> <p>k) The council have begun a review of the energy efficiency of its stock to compile a list of improvement that can be implemented to further reduce energy consumption.</p>	

Measure	Action	Progress	Further information
Reducing Emissions at its source	12. Seek to control and minimise emissions from industrial premises	<ul style="list-style-type: none"> • Emissions/Concentration data • Benefits • Negative impacts / Complaints <p>Regulation duties continued in line with the LAPPC requirements. No complaints were received in 2015/16 regarding emissions from industrial sites regulated by the council. No notices were served.</p> <p>Two nuisance complaints were received for two Part A PPC sites, one a metal recycling station and the other a waste transfer station. These were addressed and passed to the Environment Agency as the enforcing authority.</p>	
Reducing the Need to Travel	13. Sustain and improve town & local centres, facilities and employment areas	<p>a) In January 2015 we consulted on a draft Local Plan which outlines the council's vision and preferred options for development in the borough for the next 20 years. It includes the identification of five key regeneration areas, strategic sites for development and options for policies on topics such as transport, town centres, the local economy and environmental issues.</p> <p>b) Policies continue to encourage the continued regeneration of the borough's town centres to ensure the continued provision of a wide range of high quality retailing, services, arts and cultural and other leisure facilities to serve local residents, visitors and workers.</p> <p>c) The next draft of the Local Plan will be consulted on in summer 2016.</p>	The council are working with a residents group to form a Hammersmith Town Centre SPD – which looks to minimise town centre traffic with the potential pedestrianisation of the Hammersmith gyratory.

Measure	Action	Progress	Further information
Reducing the Need to Travel	14. Seek to reduce the air quality impact of new development	<ul style="list-style-type: none"> • Emissions/Concentration data • Benefits • Negative impacts / Complaints <p>The wording of our air quality policy within our Draft Local Plan is currently under consultation and has been amended in order to include all developments that have the potential to impact or be impacted by local air quality (previously restricted to major developments). The basis of a number of transport policies has had air quality woven into its purpose in this Draft Local plan going through the consultation process. The current policy continues to be implemented on all relevant planning applications. Our Supplementary Planning Guidance is also under review and the council plans to imbed the importance of air quality into it.</p> <p>Construction logistics plans are required on most developments which require details on how delivery hours will be managed to reduce impact and the need for stationary vehicles and potential idling</p>	
Encouraging a Switch to Less Polluting Forms of Transport	15. Promotion of bus services	<p>a) No new bus services were introduced in LBHF during 2015/16 but improvements in frequency/ reliability were secured for routes 266 and 487.</p> <p>b) Bus services are promoted on the council website. The council have implemented a new refreshed and easy to use mobile website.</p>	Bus passengers are continuing to benefit from improvements to real time information at bus stops and through increasingly used smart phone apps.

Measure	Action	Progress	Further information
Encouraging a Switch to Less Polluting Forms of Transport	16. Promotion of other forms of public transport	<ul style="list-style-type: none"> • Emissions/Concentration data • Benefits • Negative impacts / Complaints <p>The council have been working with local community transport providers to promote Taxicard and Dial-a-Ride and other similar projects.</p> <p>The council's website has been improved for use on mobile devices including the councils Transport pages giving users information on alternate modes of travel to driving.</p>	

Measure	Action	Progress	Further information
<p>Encouraging a Switch to Less Polluting Forms of Transport</p>	<p>17. Promotion of cycling</p>	<ul style="list-style-type: none"> • Emissions/Concentration data • Benefits • Negative impacts / Complaints <p>a) The new Cycling Strategy was launched in September 2015 with an overall aim of getting 8% of all trips made by our residents, made by bike. The Strategy also highlighted the development of new dedicated and segregated cycle lanes through Hammersmith Gyrotory, a new cycle Superhighway (9) from Kensington Olympia to Chiswick, a cycle Quietway from east Acton to Kensington along the edge of Wormwood scrubs, and a proposed Superhighway along the A40 Westway. The residential parking scheme has continued with 3 Bikehanger units supplied to Fulham Court. 20 cycle stands were also installed at the request of residents. New cycle lanes have been installed along Uxbridge Road and Goldhawk road.</p> <p>b) A SUD scheme was built along Talgarth Road which incorporated a sustainable cycle track and planting aimed to reduce air pollutants.</p> <p>c) The programme of cycle training and maintenance classes continued along with the award – winning “Exchanging Places” scheme to reduce conflict between cyclists and large goods vehicles.</p> <p>d) The Council is investigating its FORS status.</p>	

Measure	Action	Progress	Further information
Encouraging a Switch to Less Polluting Forms of Transport	18. Promotion of Walking	<ul style="list-style-type: none"> • Emissions/Concentration data • Benefits • Negative impacts / Complaints <p>b) An example of decluttering involved improvements carried out at the junction of Stamford Brook and Emlyn Road where unnecessary guard railing was removed</p> <p>c) A 20mph trial was undertaken and recommendations made to implement a significant extension of the 20 mph speed limit. This will make walking much more attractive.</p> <p>d) The council are also planning to also given to carry out initial design and consultation on a range of measures to support a reduced speed limit in certain roads.</p>	
Encouraging a Switch to Less Polluting Forms of Transport	19. Encourage a reduction in car use for the journey to school	<p>Of the 78 schools in the Borough, 56 have a “valid” (i.e. active and reviewed in the last 12 months) travel plan. Under the STAR.(School Travel Accredited and Recognised) online award scheme. The following levels have been recognised :-</p> <p>19 engaged 45 Bronze 1 Silver 3 Gold</p>	

Measure	Action	Progress	Further information
Encouraging a Switch to Less Polluting Forms of Transport	20. Encourage a reduction in car use for the journey to work and business trips	<ul style="list-style-type: none"> • Emissions/Concentration data • Benefits • Negative impacts / Complaints <p>Workplace travel plans continue to be conditioned for any new developments.</p> <p>We have signed up to have a pool cycle hire for HF employees</p>	
Encouraging a Switch to Less Polluting Forms of Transport	21. Control provision of on and off street parking to deter car commuting into and within the borough	<p>Council has started introducing parking controls on housing estates to remove availability of uncontrolled publically accessible urban parking areas.</p> <ul style="list-style-type: none"> a) The changes introduced in the local plan will reduce the number of new developments eligible for on street parking permits. b) LBHF have introduced extended parking controls in three CPZs designed to reduce the availability of free parking for weekend visitors. 	
Encouraging a Switch to Less Polluting Forms of Transport	22. Encourage freight to be transported in a sustainable manner	Working in partnership with Westrans for the provision of a freight consolidation centre in West London which would be accessible to LBHF businesses.	See further information under measure 7.

Measure	Action	Progress	Further information
Make a More Efficient Use of Road Transport	23. Encourage car sharing	<ul style="list-style-type: none"> • Emissions/Concentration data • Benefits • Negative impacts / Complaints <p>We have been actively working with two car club operators, Zipcar and City Car Club to expand their existing on-street network. In September 2016 an additional 21 car club bays will be introduced on-street.</p> <p>We have been advised that all of Zipcars fleet of vehicles is already Euro 6 compliant and all of their diesel fleet of vehicles will be decommissioned by the end of 2016.</p>	
Make a More Efficient Use of Road Transport	24. Discourage short journeys	<p>Increased parking controls in several CPZs to discourage nonresident parking</p> <p>20mph speed limit trial was undertaken. One aim is to make alternate modes of transport more ideal including for short journeys</p>	
Other Measures to Reduce Road Traffic Emissions	25. Reduce the amount of road traffic in residential areas and town centres	<p>The council are making plans to carry out initial design and consultation on a range of measures to support a reduced speed limit in certain roads.</p> <p>The council use local transport fund to change traffic management on local residential roads to reduce traffic including a popular cut through associated with A4 traffic - Margravine Gardens</p> <p>A 20mph trial was undertaken and recommendations made to implement a significant extension of the 20 mph speed limit. This will make alternate modes of transport much more attractive thus reducing traffic.</p>	<p>The council are working with a residents group to form a Hammersmith Town Centre SPD – which looks to minimise town centre traffic with the potential pedestrianisation of the Hammersmith gyratory.</p>

Measure	Action	Progress	Further information
Other Measures to Reduce Road Traffic Emissions	26. Promote the use of trees to help improve local air quality	<ul style="list-style-type: none"> • Emissions/Concentration data • Benefits • Negative impacts / Complaints <p>In 2015/16, the council planted 26 new street trees and 143 replacement street trees – a total of 169 trees planted on highway sites. 1 new tree and 13 replacement trees were planted on housing estates. A total of 420 new trees have been planted in parks and cemeteries.</p>	
Other Measures to Reduce Road Traffic Emissions	27. Reduce the amount of traffic on the A4 and A40	<p>The council are working with TfL on the extension to the East-West Cycle Superhighway which would take a lane off of the elevated section of the A40 from White City to Paddington.</p> <p>Council working with resident groups to future proof the town centre including the pedestrianisation of the gyratory and the fly-under of the A40</p>	
Raise Awareness of the Links Between Air Quality and Health	28. Provide information to allow people to make informed choices about travel behaviour	<p>There are now 232 subscribers for AirTEXT pollution alerts relating to LBHF. The majority of these subscribers receive alerts by text message.</p> <p>In the period between April 2015 – March 2016, 70 users subscribed to the airTEXT service, there were 141 text alert users, 30 voice alert users and 61 email alert users.</p> <p>AQ officers assisted in air quality teaching sessions to contribute to the LBHF event ‘Children’s Parliament on the Environment 2015’</p>	

Measure	Action	Progress	Further information
Raise Awareness of the Links Between Air Quality and Health	29. Provide information so people can make informed choices about reducing pollution from domestic activities	<ul style="list-style-type: none"> • Emissions/Concentration data • Benefits • Negative impacts / Complaints No new publicity material produced.	
Raise Awareness of the Links Between Air Quality and Health	30. Continue to monitor air quality and make info. available	Real time monitoring at Shepherds Bush Green of NO ₂ and PM10 continue. The station measured an annual mean of NO ₂ concentration of 76 µg/m ³ and there were 19 exceedences of the hourly objective. The station measured an annual mean of PM10 below the national objective at 25 µg/m ³ with 10 daily means exceeding the 50 µg/m ³ short term objective.	

3. Planning Update and Other New Sources of Emissions

No planning update for this year

3.1 *New or significantly changed industrial or other sources*

No new sources identified

Appendix A Details of Monitoring Site QA/QC

A.1 Automatic Monitoring Sites

The council's automatic monitoring station is part of the London Air Quality Network (LAQN), which is run by the Environmental Research Group at King's College London. All real-time data from the monitoring station is therefore independently collected and validated on a daily basis. A combination of automatic and manual checks is used to assess data, identify and diagnose potential equipment faults and adjust data to take account of calibration tests. Automatic overnight calibrations are supplemented with regular manual calibrations of analysers. The procedures used conform to the requirements of the UK Automatic Urban and Rural Network Management and Co-ordination Units.

All data is also formally ratified. During this process the validation decisions can be ratified with the benefit of hindsight and using greater information, such as service records, calibration records and the results of station audits. Station audits are carried out every 6 months by the National Physical Laboratory, which is UKAS (United Kingdom Accreditation Service) accredited.

PM₁₀ Monitoring Adjustment

All PM₁₀ data presented in this report have been corrected to gravimetric equivalent using the Volatile Correction Model.

A.2 Diffusion Tube Quality Assurance / Quality Control

Diffusion tube analysis is carried out in Gradko's UKAS accredited laboratory. They use a 50% in Acetone preparation method. Their limit of detection is 0.066µg NO₂. Laboratory preparation and analysis of the tubes is strictly controlled and Gradko participate in 2 major independent schemes to assess their performance.

1) Workplace Analysis Scheme for Proficiency (WASP) and AIR PT

Gradko participates in the AIR proficiency testing for NO₂ diffusion tube scheme on a quarterly basis. AIR PT is a new scheme, started in April 2014, operated by LGC Standards and supported by the Health and Safety Laboratory (HSL). AIR PT has combined two long running proficiency testing schemes LGC Standards. STACKS PT scheme and HSL WASP PT scheme. AIR is a recognised performance-testing programme for labs undertaking NO₂ diffusion tube analysis as part of the UK NO₂ monitoring network. Further information on proficiency testing can be found at Defra's Local Air Quality Management webpages.

Table - Gradko International Laboratory Summary Performance for WASP/ AIR NO₂ PT Rounds 006, 007, 0010, 2015

Round	AIR PT 006	AIR PT 007	AIR PT 009	AIR PT 0010
Round conducted in this period	January-March 2015	April-May 2015	July-August 2015	October-November 2015
Gradko International	100%	100%	100%	100%

2) Network Field Inter-comparison Exercise

This exercise is operated by the National Physical Laboratory (NPL) and tests the performance of the diffusion tubes and lab analysis procedures and involves the regular exposure of a triplet of tubes at an Automatic Urban Network (AUN) site where real-time NO₂ levels are also measured using a chemiluminescent analyser.

Gradko operates well within the required level of performance in terms of accuracy and precision, as shown by the results below. The NPL performance criterion for precision is that the mean coefficient of variation for the full year should not exceed 10%, should this be achieved the precision is given a score of 'good'.

Summary of NO₂ Network Field Inter-Comparison Results, 2015

Annual Mean Bias

Performance Target: +25%
 Gradko Annual Mean Bias: +6.4%

Precision

Performance Target: 10%
 Gradko Precision: Good

Gradko International Ltd performs blank exposures that serve as a quality control check on the tube preparation procedure.

Factor from Local Co-location Studies (if available)

Bureau Veritas conducts an 'in-house' co-location study to establish an LWEF bias-adjustment factor based on triplicate NO₂ diffusion tubes located with a continuous analyser, for a number of local authorities. The council does not have any NO₂ diffusion tubes co-located with its real-time monitoring station. However a local bias adjustment factor calculated using data from the Royal Borough of Kensington and Chelsea AURN affiliated site at North Kensington was chosen to be used rather than the National Bias Adjustment Factor.

Bias Adjustment Factor and % Bias of LWEF Co-Location Study 2015

	Diffusion Tube	Continuous Analyser	Correction Factor (A)	% Bias based on continuous monitor B
North Kensington	28.3	30.1	1.07	-6
LWEF Bloomsbury	42.2	48.2	1.14	-12
Croydon, George Street	54.5	51.8	0.95	5
Greenwich, Eltham	19.1	19.6	1.03	-3
Greenwich, Trafalgar	35.0	35.5	1.01	-1
Greenwich, Blackheath	46.3	39.3	0.84	19
Greenwich, Westhorpe Av	40.8	39.6	0.96	4
Greenwich, Burrage	31.6	35.4	1.13	-12
Greenwich, Woolwich Flyover	70.7	66.2	0.94	7
Greenwich, Bexley Falconwood	51.7	41.4	0.80	25
Overall % Bias				2.6
Overall Bias Adjustment Factor			0.97	

Table - Bias Adjustment Factors (BAF) used by LBHF 2009-2015

Year	BAF
2009	0.92
2010	0.93
2011	0.94
2012	1.01
2013	1.14
2014	1.03
2015	1.07

Discussion of Choice of Factor to Use

The bias adjustment factor is calculated by Bureau Veritas using data collected at the Royal Borough of Kensington and Chelsea AURN affiliated site (this local bias adjustment factor was chosen over the National Bias Adjustment Factor as it is considered to be more representative of local conditions). The bias adjustment factor for 2015 has been calculated as 1.07.

Appendix B Full Monthly Diffusion Tube Results for 2015

TableN. NO2 Diffusion Tube Results

Site ID	Valid data capture for monitoring period % ^a	Valid data capture 2015 % ^b	Annual Mean NO ₂												Annual mean – raw data	Annual mean – bias adjusted
			Jan	Feb	March	Apr	May	June	Jul	Aug	Sept	Oct	Nov	Dec		
HF32	100	100	<u>56.88</u>	<u>75.01</u>	<u>66.43</u>	<u>76.19</u>	<u>65.46</u>	<u>77.60</u>	<u>74.30</u>	<u>78.24</u>	<u>77.60</u>	<u>80.10</u>	<u>75.92</u>	<u>65.54</u>	<u>72.44</u>	<u>77.51</u>
HF44	100	100	28.57	36.59	29.72	27.23	18.31	19.58	18.67	23.89	30.46	39.01	26.82	20.52	26.61	28.48
HF45	100	100	33.78	38.76	29.51	31.20	26.69	25.52	24.42	28.09	36.12	39.63	36.93	31.24	31.82	34.05
HF47	100	100	43.04	47.58	36.32	40.57	34.68	38.47	39.51	41.80	45.10	49.85	48.63	43.18	42.40	45.36
HF50	100	100	58.09	58.08	46.51	60.86	53.74	57.05	58.32	<u>60.76</u>	59.68	56.95	52.05	53.76	56.32	<u>60.26</u>
HF53	100	100	34.29	39.03	30.05	30.44	22.27	25.04	22.03	26.96	36.37	40.47	31.26	27.06	30.44	32.57
HF54	100	100	<u>70.74</u>	<u>83.46</u>	<u>72.23</u>	<u>100.98</u>	<u>64.10</u>	37.65	<u>64.55</u>	<u>68.01</u>	<u>88.91</u>	<u>104.81</u>	<u>59.44</u>	<u>43.97</u>	<u>71.57</u>	<u>76.58</u>
HF61	100	100	43.63	46.61	40.84	40.17	30.72	<u>72.47</u>	36.06	36.52	46.12	47.63	40.97	32.97	42.89	45.90
HF63	91	91	42.24	58.44	48.85	57.05	42.74		48.25	48.61	<u>60.40</u>	<u>69.99</u>	46.80	35.59	46.58	49.84
HF66	100	100	34.26	39.15	30.86	26.96	19.83	22.64	19.70	27.68	32.24	41.33	32.32	26.40	29.45	31.51
HF62	100	100	33.87	36.30	27.48	27.26	20.30	23.24	22.90	25.29	31.38	39.00	31.43	25.68	28.68	30.69
HF65	100	100	53.00	<u>60.46</u>	47.45	47.51	44.45	46.60	46.30	58.84	55.07	<u>65.01</u>	58.96	56.35	53.33	57.07
HF48	100	100	45.73	45.03	39.51	41.86	31.21	38.30	30.50	42.87	46.18	56.50	44.53	36.53	41.56	44.47
HF64	100	100	54.07	56.64	46.72	52.08	44.53	46.89	46.03	54.06	54.84	56.47	53.73	48.22	51.19	54.77
HF60	100	100	45.33	44.84	32.23	31.33	27.43	29.43	30.63	30.98	26.57	41.38	47.77	33.81	35.14	37.60

Exceedance of the NO₂ annual mean AQO of 40 µg m⁻³ are shown in **bold** and means in excess of 60 µg m⁻³ indicating a potential exceedance of the NO hourly mean AQS objective are shown underlined.

^a data capture for the monitoring period, in cases where monitoring was only carried out for part of the year

^b data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%)

^c Means should be “annualised” in accordance with LLAQM Technical Guidance, if valid data capture is less than 75%